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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/687,328	10/16/2003	Jose F. Arena	7230-8	8505

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EXAMINER

SWITZER, JULIET CAROLINE

ART UNIT	PAPER NUMBER
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1634

MAIL DATE	DELIVERY MODE
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08/20/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/687,328

Applicant(s)

ARENA ET AL.

Examiner

Juliet C. Switzer

Art Unit

1634

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 October 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) 3 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5 and 8 is/are rejected.
- 7) ☒ Claim(s) 6, 7, 9 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This office action is written in response to the papers received 6/11/07. Claims 1-9 remain pending. Claim 3 is withdrawn from consideration as being drawn to a non-elected invention. All amendments and remarks have been carefully considered and are addressed in this office action. This action is **FINAL**.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 2, 3, 5 and 8 are rejected under 35 U.S.C. 102(b) as being anticipated by Panguluri et al. (Human Genetics (1999) 105:28-31; provided in IDS).

Panguluri et al. teach a method for analyzing a biological sample comprising (a) obtaining a biological sample from an African American subject; and (b) analyzing the sample for the presence of a genetic polymorphism or mutation that is an adenine to guanine transition at position 5217 in the BRCA1 gene. Namely, Panguluri et al. teach analysis of the entire coding region of the BRCA1 gene from 45 African American breast cancer patients (p. 28). Thus, every single position within the entire coding region of the gene was analyzed for the presence of a genetic polymorphism or mutation, including position 5217 which is part of the coding sequence. The instant claims do not require that a particular variant sequence be detected, only that the

Art Unit: 1634

sample is analyzed for the presence of the polymorphism or mutation. Since Panguluri et al. analyzed the entire coding region for any irregularities that were present, the teachings of Panguluri et al. anticipate the claim.

Regarding claim 2, position 4959 was also analyzed since it is also part of the coding sequence.

Regarding claim 3, the 943ins10 alteration was tested for and detected (Table 2).

The sample used by Panguluri et al. was blood (p. 29).

Panguluri et al. conduct a polymerase chain reaction step as part of the analyzing the sample (p. 29). Panguluri et al. amplify nucleic acids comprising all of the exons, including position 5217 of the BRCA1 gene (p. 29).

Panguluri et al. determine the nucleotide sequence of the genetic polymorphism or mutation by inference, the fact that no variant was detected at a particular position is informative that the "wild" type is present.

Panguluri et al. analyze all of the exons by single strand conformation polymorphism analysis (p. 29).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various

Art Unit: 1634

claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Panguluri et al. in view of Livak et al (US Patent 5538848).

Panguluri et al. teach a method for analyzing a biological sample comprising (a) obtaining a biological sample from a subject; and (b) analyzing the sample for the presence of a genetic polymorphism or mutation that is an adenine to guanine transition at position 5217 in the BRCA1 gene. Namely, Panguluri et al. teach analysis of the entire coding region of the BRCA1 gene from 45 African American breast cancer patients (p. 28). Thus, every single position within the entire coding region of the gene was analyzed for the presence of a genetic polymorphism or mutation, including position 5217 which is part of the coding sequence. The instant claims do not require that a particular variant sequence be detected, only that the sample is analyzed for the presence of the polymorphism or mutation. Since Panguluri et al. analyzed the entire coding region for any irregularities that were present; the teachings of Panguluri et al. anticipate the claim. Panguluri et al. conduct a polymerase chain reaction step as part of the analyzing the sample (p. 29). Panguluri et al. amplify nucleic acids comprising all of the exons, including position 5217 of the BRCA1 gene (p. 29).

Panguluri et al. do not conduct a real-time PCR amplification.

Livak et al. teach real time PCR methods and teach that an advantage of using such a method is the ability to know whether PCR is occurring while the cycling reactions are taking place, minimizing possible cross-contamination, and monitoring the efficiency of amplification reaction to be evaluated, which can indicate where reaction inhibitors are present in the sample (Col. 1, lines 30-52).

Thus, at the time the invention was made, it would have been prima facie obvious to one of ordinary skill in the art to have modified the methods taught by Panguluri et al. so as to have used the real-time PCR methods taught by Livak et al. One would have been motivated to use the real time PCR methods taught by Livak et al. in place of the conventional PCR taught by Panguluri et al. in order to have provided a means for monitoring the PCR progression while the reaction was taking place, in order to monitor for the presence of inhibitors, for example. In view of the teachings of the prior art, the claimed invention is prima facie obvious.

Response to remarks

Applicant traverses the art rejections stating that Panguluri et al. fails to teach analyzing the sample for the presence of a mutation or polymorphism at position 5217 in the BRCA1 gene. However, this is not persuasive. Panguluri et al. analyze the samples for mutations or polymorphisms at every single position of the BRCA1 gene, as discussed in the rejection, and thus, they inherently consider position 5217 for any possible mutation or polymorphism at that position. The fact that Panguluri et al. do not mention position 5217 by number does not subtract from the fact that they inherently considered every position in the gene. Amendment of claim 1 to include a step (c) which recites detecting the presence of a guanine at position 5217 of the BRCA1 gene would overcome the art rejections set forth in this office action.

The rejection under 112 1st paragraph is overcome in view of the arguments set forth in the first paragraph page 8 of the response and in view of the declaration under 1.132 which shows that the 5217 A>G mutation has a negative effect on BRCA1 BRCT activity which increases risk for breast cancer (declaration paragraph 3).

Claim Objections

7. Claims 6, 7, and 9 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. While the prior art teaches analyzing position 5217 of the BRCA1 gene for a transition, for example as discussed in the rejection of claim 1 in this office action, the prior art does not teach a method which includes PCR amplifying a nucleic acid that has a guanine at position 5217 of the BRCA1 gene, as required by claims 6, 7, and 9.

Conclusion

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

Art Unit: 1634

however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Juliet C Switzer whose telephone number is (571) 272-0753. The examiner can normally be reached on Monday, Tuesday, or Wednesday, from 9:00 AM until 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ram Shukla can be reached by calling (571) 272-0735.

The fax phone numbers for the organization where this application or proceeding is assigned are (571) 273-8300. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (571)272-0507.

Patent applicants with problems or questions regarding electronic images that can be viewed in the Patent Application Information Retrieval system (PAIR) can now contact the USPTO's Patent Electronic Business Center (Patent EBC) for assistance. Representatives are available to answer your questions daily from 6 am to midnight (EST). The toll free number is (866) 217-9197. When calling please have your application serial or patent number, the type of document you are having an image problem with, the number of pages and the specific nature of the problem. The Patent Electronic Business Center will notify applicants of the resolution of the problem within 5-7 business days. Applicants can also check PAIR to confirm that the

Art Unit: 1634

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For all other customer support, please call the USPTO Call Center (UCC) at 800-786-9199.

A handwritten signature in black ink, appearing to read 'Juliet C. Switzer', is positioned above the printed name.

Juliet C. Switzer
Primary Examiner
Art Unit 1634

August 8, 2007